

ABSTRACT OF THE DISCLOSURE

Molecular systems are provided for electric field activated switches, such as optical switches. The molecular system has an electric field induced band gap change
5 that occurs via one of the following mechanisms: (1) molecular conformation change; (2) change of extended conjugation via chemical bonding change to change the band gap; or (3) molecular folding or stretching. Nanometer-scale reversible optical switches are thus provided that can be assembled easily to make a variety of optical devices, including optical displays.

10